

# Package ‘RChest’

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**Type** Package

**Title** Locating Distributional Changes in Highly Dependent Time Series

**Version** 1.0.3

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**Description** Provides algorithms to locate multiple distributional change-points in piecewise stationary time series. The algorithms are provably consistent, even in the presence of long-range dependencies. Knowledge of the number of change-points is not required. The code is written in Go and interfaced with R.

**License** GPL

**URL** <https://github.com/azalk/GoChest>

**BugReports** <https://github.com/azalk/GoChest/issues>

**Imports** Rdpack, reticulate

**Suggests** testthat

**RdMacros** Rdpack

**Encoding** UTF-8

**LazyData** true

**RoxygenNote** 7.1.1

**NeedsCompilation** no

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**Repository** CRAN

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find\_changepoints      *find\_changepoints*

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### Description

Returns the position of changepoints in the sequence. NOTE: PyChest needs to be installed first by calling 'install\_PyChest'.

### Usage

```
find_changepoints(sample, minimum_distance, process_count)
```

### Arguments

`sample`            A vector of floats corresponding to the piecewise stationary sample where the retrospective changes are to be sought

`minimum_distance`    A real number between 0 and 1 corresponding to a lower-bound on the minimum normalized length of the stationary segments (as percentage of total sample length)

`process_count`    The different number of distinct stationary processes present.

### Value

The list of changepoints in increasing size

### References

Khaleghi A, Ryabko D (2014). "Asymptotically consistent estimation of the number of change points in highly dependent time series." In *International Conference on Machine Learning*, 539–547.

Khaleghi A, Ryabko D (2012). "Locating changes in highly dependent data with unknown number of change points." In *Advances in Neural Information Processing Systems*, 3086–3094.

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install\_PyChest      *install\_PyChest*

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### Description

Initializes the package and installs/updates PyChest into the local reticulate-Python environment

### Usage

```
install_PyChest()
```

**Value**

No return value, called to install the PyChest Package

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list_estimator	<i>list_estimator</i>
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**Description**

Returns the position of changepoints in the sequence. NOTE: PyChest needs to be installed first by calling 'install\_PyChest'.

**Usage**

```
list_estimator(sample, minimum_distance)
```

**Arguments**

sample            A vector of floats corresponding to the piecewise stationary sample where the retrospective changes are to be sought

minimum\_distance    A real number between 0 and 1 corresponding to a lower-bound on the minimum normalized length of the stationary segments (as percentage of total sample length)

**Value**

The list of changepoints in order of score

**References**

Khaleghi A, Ryabko D (2012). "Locating changes in highly dependent data with unknown number of change points." In *Advances in Neural Information Processing Systems*, 3086–3094.

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